

REMARKS

Claims 31-59 are at issue. Claims 31-59 were rejected under the judicially created doctrine of obviousness-type double patenting based upon U.S. Patent No. 6,703,625. Claim 31 was further rejected as unpatentable over Ota (U.S. Pat. 6,485,153). The applicant respectfully traverses the rejections. Reconsideration is requested.

Submitted herewith is a Terminal Disclaimer pursuant to 37 CFR 1.321(c) as executed by Michael R. Hull (Reg. No. 35,902), the attorney of record in the present application. In view of the Terminal Disclaimer submitted herewith, it is respectfully submitted that the rejection of claims 31-59 as unpatentable over U.S. Patent No. 6,703,625 under the judicially created doctrine of obviousness-type double patenting has been overcome and should be withdrawn.

The rejection of claim 31 under 35 U.S.C. §102 as anticipated by Ota should be withdrawn because Ota does not disclose or suggest an illumination shaping device that includes a first reflecting objective arranged to accept input light having an on-axis illumination pattern and a second reflecting objective arranged to reflect the input light as output light having an off-axis illumination pattern. While Ota discloses a first reflecting objective (M1) and a second reflecting objective (M4), the first reflecting objective (M1) is not arranged to receive input light having an on-axis illumination pattern and the second reflecting objective (M2) is not arranged to reflect the input light as output light having an off-axis illumination pattern.

In particular, Ota discloses a projection optical system (PO) which includes a plurality of reflecting optical elements (M1, M2, M3, M4) to transfer a pattern formed by a reticle (R) onto a wafer (W). (Col. 6, ll. 51-65; col 10, ll. 63-67). The first mirror (M1) receives projection light (EL) from the reticle (R), and the fourth mirror (M4) reflects the light (EL) onto a wafer (W). (Fig. 1). However, Ota does not disclose whether the pattern of the light (EL) received by the first mirror (M1) is an on-axis illumination pattern or an off-axis illumination pattern. As such, Ota does not disclose a first reflecting objective arranged to accept input light having an on-axis illumination pattern. Likewise, Ota does not disclose whether the pattern of the light (EL) reflected by the fourth mirror (M4) is an on-axis illumination pattern or an off-axis illumination pattern. As such, Ota does not disclose a second reflecting objective arranged to reflect the input light as output light having an off-axis illumination pattern.

Further, the mirrors (M1, M2, M3, M4) of the projection optical system (PO) of Ota are arranged to project a magnification of the image from the reticle (R) to the wafer (W), but do not shape the illumination pattern. (Col. 6, ll. 51-65). For example, an on-axis illumination pattern formed by the reticle (R) and incident on the first mirror (M1) would still be reflected by the fourth mirror (M4) as an on-axis illumination pattern onto the wafer (W). Likewise, an off-axis illumination pattern formed by the reticle (R) and incident on the first mirror (M1) would remain an off-axis illumination pattern when reflected by the fourth mirror (M4) onto the wafer (W). In other words, the illumination pattern incident on the first mirror (M1) is the same as the illumination pattern reflected by the fourth mirror (M4). As such, the first mirror (M1) is not a first reflecting objective arranged to accept input light having an on-axis illumination pattern, and the fourth mirror (M4) is not a second reflecting objective arranged to reflect the input light as output light having an off-axis illumination pattern, as recited by claim 31.

Accordingly, the applicant respectfully submits that claim 31 is novel and non-obvious in view of Ota and should be allowed. Further, claims 32-59, which are dependent upon claim 31, have not been rejected in view of Ota. However, the applicant respectfully submits that claims 32-59 are also novel and non-obvious in view of Ota and should be allowed. In light of the foregoing, the prompt issuance of a notice of allowance is respectfully solicited. Should the examiner have any questions, the examiner is respectfully invited to telephone the undersigned.

Respectfully submitted,

MARSHALL, GERSTEIN & BORUN LLP
233 S. Wacker Drive
6300 Sears Tower
Chicago, Illinois 60606-6357
(312) 474-6300

By: _____

Aaron M. Peters
Registration No.: 48,801
Attorney for Applicant

November 23, 2004